

**REMARKS**

Claims 75- 140 are pending in the application. Applicant amended Claims 75, 77, 78, 80, 83-85, 87-88, 91-92, 96-97, 101-102, 104-109, 111-112, 114-115, 118-119, 125, 127, 133-137, and 139. Applicant added no new matter to the application.

**Telephonic Interview**

Applicant thanks Examiner Burd for the courtesies extended to Applicant's attorney, Karl F. Horlander (Reg. No. 63,147), during a telephonic interview held on July 16, 2009.

In the telephonic interview, the parties discussed the pending claims and asserted prior art. As a result of the telephonic interview, the Examiner agrees that that the cyclic counter described in "Jones" et al. (U.S. 6,108,317), fails to describe the limitations as asserted in the Office Action mailed May 6, 2009. In addition, the Examiner further agrees that the recited portions of Alamouti fail to teach or suggest a pseudo-random code generator configured to generate a second stream of pseudo-random code words as a function of a first stream of pseudo-random code words.

**Rejections based under 35 U.S.C. 103(a)**

Claims 75-122 and 124-140 were rejected under 35 U.S.C. 103(a) as being unpatentable over Alamouti et al. (US 6,853,629) modified by Jones et al. (US

6,108,317) further modified by Fathallah et al. (US 6,381,053), and still further modified in view of Swanke (US 5,521,533). *See* Office Action page 3, item 4.

Claim 123 was rejected under 35 U.S.C. 103(a) as being unpatentable over Alamouti et al. in view of Fathallah in view of Jones et al. further in view of Swanke further in view of Becker (US 6,726,099). *See* Office Action page 14, item 6.

## **DEFINITIONS**

As discussed in the telephonic interview, Applicant respectfully submits that the term "dither" or "dithering" are terms in the technical arts.

As used herein, dithering is defined as a technique for minimizing cyclic, correlated, and/or repeating errors due to quantization and re-quantization of digital data, which includes intentional application of a form of noise to randomize the quantization error.

## **INDEPENDENT CLAIMS**

### **Claim 75**

Applicant respectfully submits that amended Claim 75 is neither taught nor suggested by Alamouti modified by Jones, further modified by Fathallah, and still further modified by Swanke, as recited in the Office Action.

As an example, pursuant to the telephonic interview, the Examiner agrees that Paul fails to teach or suggest "a pseudo-random code generator configured to generate a first stream of pseudo-random code words and a second stream of pseudo-random code words, wherein the second stream of pseudo-random code

words is generated as a function of the first stream of pseudo-random code words to interrelate the first stream of pseudo-random code words to the second stream of pseudo-random code words based upon a predetermined relationship," as recited in Claim 75. Accordingly, as further discussed in the telephonic interview, the rejection recited in the Office Action, Alamouti modified by Jones, further modified by Fathallah, and still further modified by Swanke, fails to establish the *prima facie* obviousness of Claim 75.

Also, as discussed in the telephonic interview, Claim 75 recites "a programmable direct digital frequency synthesizer coupled to the pseudo-random code generator to receive the second stream of pseudo-random code words, the programmable direct digital frequency synthesizer configured to generate a carrier signal at a sequence of carrier frequencies for each of the data bits based upon a sequence of the pseudo-random code words of the second stream of pseudo-random code words received by the programmable direct digital frequency synthesizer during each data bit time."

As further discussed in the telephonic interview, the cyclic shift circuit described in Jones fails to teach or suggest how the output of the cyclic shift circuit could be utilized with the direct digital synthesizer to generate carrier frequencies at a sequence of carrier frequencies. Instead, Jones describes using a cyclic shift of orthogonal codes to permit multiple users to share the same bandwidth, where the codes are used to spread a data bit. However, as agreed during the telephonic interview, Jones fails to teach or suggest the limitations of "the programmable

direct digital frequency synthesizer configured to generate a carrier signal at a sequence of carrier frequencies for each of the data bits based upon a sequence of the pseudo-random code words of the second stream of pseudo-random code words," as recited in Claim 75.

Accordingly, Applicant requests withdrawal of the rejection of Claim 75 and the claims dependent thereupon, and reconsideration of these claims.

### **Claim 107**

Pursuant to the telephonic interview, the Examiner agrees that Jones fails to teach or suggest the limitations of "a programmable direct digital frequency synthesizer ... configured to generate a carrier signal at a sequence of carrier frequencies for each of the data bits based upon a sequence of the pseudo-random code words of the second stream of pseudo-random code words received by the programmable direct digital frequency synthesizer during each data bit time," as recited by Claim 107. Accordingly, as discussed in the telephonic interview, the rejection recited in the Office Action, Alamouti modified by Jones, further modified by Fathallah, and still further modified by Swanke, fails to establish the *prima facie* obviousness of Claim 107.

In addition, the Examiner agrees that Alamouti fails to teach or suggest "generating, with the pseudo-random number generator, a second stream of pseudo-random code words as a function of the first set of pseudo-random code words based upon a predetermined relationship wherein there are "H" pseudo-random code

words per data bit time," as recited by Claim 107. In addition, Alamouti, Jones, Fathallah, and Swanke, either alone or in combination, are likewise non-availing.

At least for these reasons, Applicant requests withdrawal of the rejections of Claim 107 and those claims dependent thereupon, and reconsideration of these claims.

### Claim 91

Claim 91 recites "the programmable direct digital frequency synthesizer configured to directly generate a carrier signal having a carrier frequency based upon the second stream of pseudo-random code words, and wherein in response to the second stream of pseudo-random code words, the programmable direct digital frequency synthesizer is further configured to hop the carrier frequency of the carrier signal during a data bit time for each of the data bits, wherein multiple carrier frequency hops occur within each data bit time," which pursuant to the telephonic interview, the Examiner agrees Jones fails to teach or suggest. Accordingly, as discussed in the telephonic interview, the rejection recited in the Office Action, Alamouti modified by Jones, further modified by Fathallah, and still further modified by Swanke, fails to establish the *prima facie* obviousness of Claim 91.

In addition, the Examiner further agrees that Alamouti, Jones, Fathallah, and Swanke, either alone or in combination, fail to teach or suggest "a pseudo-random code generator configured to generate a first stream of pseudo-random code

words and a second stream of pseudo-random code words, wherein the second stream of pseudo-random code words is generated as a function of the first stream of pseudo-random code words to interrelate the first stream of pseudo-random code words to the second stream of pseudo random code words based upon a predetermined relationship, as recited by Claim 91.

At least for these reasons, Applicant requests withdrawal of the rejections of Claim 91 and those claims dependent thereupon, and reconsideration of these claims.

#### Claim 104

Pursuant to the telephonic interview, the Examiner agrees that Paul fails to teach or suggest "the programmable direct digital frequency synthesizer configured to generate a carrier signal based upon the second stream of pseudo-random code words," as recited by Claim 104. Accordingly, as discussed in the telephonic interview, the rejection recited in the Office Action, Alamouti modified by Jones, further modified by Fathallah, and still further modified by Swanke, fails to establish the *prima facie* obviousness of Claim 104.

Furthermore, the Examiner agrees that Alamouti, Jones, Fathallah, and Swanke, either alone or in combination, fail to teach or suggest "a pseudo-random code generator configured to generate a first stream of pseudo-random code words, a second stream of pseudo-random code words, and a third stream of pseudo-random code words, wherein pseudo-random code words included in the second stream of

pseudo-random code words and the pseudo-random code words included in the third stream of pseudo-random code words are a function of the pseudo-random code words included in the first steam of pseudo-random code words based upon a predetermined relationship," as recited by Claim 104

At least for these reasons, Applicant requests withdrawal of the rejections of Claim 104 and those claims dependent thereupon, and reconsideration of these claims.

### **Claim 125**

Pursuant to the telephonic interview, the Examiner agrees that Paul fails to teach or suggest "modulating each of the carrier signals generated during the data bit time, as a function of a second subset of bits of the stream of pseudo-random codes, with a plurality of sub-segments of chips," as recited in Claim 125.

Accordingly, as discussed in the telephonic interview, the rejection recited in the Office Action, Alamouti modified by Jones, further modified by Fathallah, and still further modified by Swanke, fails to establish the *prima facie* obviousness of Claim 125.

Furthermore, amended Claim 125 recites "wherein the second sub-set of bits is a function of the first sub-set of bits of the bits of the stream of pseudo-random codes," which the Examiner agrees Alamouti, Jones, Fathallah, and Swanke, either alone or in combination, fail to teach or suggest.

At least for these reasons, Applicant requests withdrawal of the rejections of Claim 125 and those claims dependent thereupon, and reconsideration of these claims.

### **Claim 136**

Pursuant to the telephonic interview, the examiner agrees that Paul fails to teach or suggest "generating multiple carrier frequencies within the data bit time with a programmable direct digital frequency synthesizer based upon the second stream of pseudo-random codes to produce a fast frequency hopped carrier signal having "H" frequency hops per each data bit time," as recited in Claim 136. Accordingly, as discussed in the telephonic interview, the rejection recited in the office action, Alamouti modified by Jones, further modified by Fathallah, and still further modified by Swanke, fails to establish the *prima facie* obviousness of Claim 136.

Claim 136 further recites "generating the second stream of pseudo-random codes having a second sequence of codes, as a function of the first stream of pseudo-random codes length that is longer than the first sequence length based upon the predetermined interrelationships," which the Examiner agrees Alamouti, Jones, Fathallah, and Swanke, either alone or in combination, fail to teach or suggest.

At least for these reasons, Applicant requests withdrawal of the rejections of Claim 136 and those claims dependent thereupon, and reconsideration of these claims.

**DEPENDENT CLAIMS****Claims 82, 95, 98, 105, 110, 121, 129, and 132.**

Applicant respectfully submits that the Office Action fails to address each and every limitation of Claims 82, 95, 98, 105, 110, 121, 129, and 132.

As discussed in the telephonic interview, Applicant respectfully submits that the term "dither" or "dithering" are terms in the technical arts.

The Office Action, page 5, took Official Notice that "amplification of signals prior to transmission is well known in the art of signal transmission."

Even so, to sustain a rejection, the Office Action must provide "some articulated reasoning which some rational underpinning to support the legal conclusion of obviousness." *See, KSR International Co. v. Teleflex Inc.*, (U.S. 2006) (citing *In re Kahn*, 441 F. 3d 977, 988 (Fed. Cir. 2006)). As discussed in the telephone interview, the Office Action fails to provide some articulate reasoning as to why the mere amplification of signals would teach or suggest the limitations of "to dither" or "dithering" an amplification of a signal.

As a result, the Office Action fails to provide some articulated reasoning to support the legal conclusion of obviousness of Claims 82, 95, 98, 105, 110, 121, 129, and 132. Accordingly, the Office Action fails to establish a *prima facie* obviousness of the Claims 82, 95, 98, 105, 110, 121, 129, and 132.

As an example, Claim 82 recites "the amplitude control circuit configured to dither the amplification control signal based upon the third stream of pseudo-

random code words," which the Office Action fails to address, and which Alamouti, Jones, Fathallah, and Swanke, either alone or in combination, also fail to teach or suggest.

As another example, Claim 95 recites "wherein the amplifier controller is configured to dither the first amplification level and the second amplification level as a function of the third stream of pseudo-random code words," which the Office Action fails to address, and which Alamouti, Jones, Fathallah, and Swanke, either alone or in combination, also fail to teach or suggest.

As another example, Claim 98 recites "wherein the first amplification level and the second amplification level are dithered at a rate greater than a reflection coefficient of a multipath condition," which the Office Action fails to address, and which Alamouti, Jones, Fathallah, and Swanke, either alone or in combination, also fail to teach or suggest.

As another example, Claim 105 recites "wherein the amplitude controller is further configured to dither the amplification of the time hopped fast frequency hopped direct sequence spread spectrum signal based upon in response to the fourth stream of pseudo random code words," which the Office Action fails to address, and which Alamouti, Jones, Fathallah, and Swanke, either alone or in combination, also fail to teach or suggest.

As another example, Claim 110 recites "dithering an amplitude of the fast frequency hopped spread spectrum signal as a function of the third stream of pseudo-random code words," which the Office Action fails to address, and which

Alamouti, Jones, Fathallah, and Swanke, either alone or in combination, also fail to teach or suggest.

As another example, Claim 121 recites "dithering an amplitude of at least one of the first component and the second component to control a polarization between the first component and the second component based upon the pseudo-random dither control signal," which the Office Action fails to address, and which Alamouti, Jones, Fathallah, and Swanke, either alone or in combination, also fail to teach or suggest.

As another example, Claim 129 recites "dithering an amplitude of at least one of the first direct sequence fast frequency hopped spread spectrum signal and the second direct sequence fast frequency hopped spread spectrum signal," which the Office Action fails to address, and which Alamouti, Jones, Fathallah, and Swanke, either alone or in combination, also fail to teach or suggest.

As another example, Claim 132 recites "dithering the amplitude of the first direct sequence fast frequency hopped spread spectrum signal and the amplitude of the second direct sequence fast frequency hopped spread spectrum signal at a rate at least equal to an estimated rate of successively received reflected signals," which the Office Action fails to address, and which Alamouti, Jones, Fathallah, and Swanke, either alone or in combination, also fail to teach or suggest.

For at least these reasons, Applicant respectfully requests that the rejections of Claims 82, 95, 98, 105, 110, 121, 129, and 132, and those dependent thereupon,

be withdrawn, and that these claims be reconsidered in a new non-final office action.

**Conclusion**

Applicant requests reconsideration of the application as amended. Applicant believes that the present pending claims of this application are allowable and respectfully requests the Examiner to withdraw the current rejections and issue a Notice of Allowance for this application.

Should the Examiner deem a telephone conference to be beneficial in expediting allowance/examination of this application, Applicant invites the Examiner to call the undersigned attorney at the telephone number listed below.

Respectfully submitted,



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